

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A tunable filter with a wide free spectral range, comprising:

a first collimator;

a second collimator with one end opposed to the first collimator, wherein a high reflectivity layer is coated on the end of the second collimator; and

a micro-electromechanical system-based (MEMS-based) one-piece reflector interposed between the first collimator and the second collimator, the reflector comprising:

a base;

an aperture defined on the base; and

a multi-layered film with high reflection capability formed on the base and extending over the aperture, wherein the multi-layered film extending over the aperture serves as a curved lens, and a resonance cavity is defined between the curved lens and the second collimator to determine a resonance frequency.

2. (Previously Presented) The tunable filter as claimed in claim 1, wherein the tunable filter is a heat-actuated type filter and the multi-layered film is formed with alternate layers of GaAs and AlAs.

3. (Currently Amended) The tunable filter as claimed in claim 1, wherein the tunable filter is an electrostatic-actuated type filter, and the MEMS-based one-piece reflector further

comprises a dielectric layer and an electrode layer sequentially formed on the base, both the dielectric layer and the electrode layer have an opening corresponding to the aperture.

4. (Previously Presented) The tunable filter as claimed in claim 3, wherein the multi-layered film is formed by alternate layers of GaAs and AlAs.

5. (Previously Presented) The tunable filter as claimed in claim 3, wherein the multi-layered film is formed by alternate layers of TiO_2 and SiO_2 .

6. (Previously Presented) The tunable filter as claimed in claim 1, wherein the first collimator has one end extending towards the second collimator, wherein an anti-reflection layer is coated on the end of the first collimator.

7-8. (Canceled)

9. (New) The tunable filter as claimed in claim 1, wherein said first collimator carries an optical input signal to said tunable filter and said second collimator carries an optical output signal from said tunable filter.